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Complete set of claims

1. (currently amended) A process for forming an image on a substrate, comprising the steps of:

(a) coating on the substrate a first layer of a radiation sensitive antireflective composition;

(b) coating a second layer of a photoresist composition onto the first layer of the antireflective composition;

(c) selectively exposing the coated substrate from step (b) to actinic radiation; and

(d) developing the exposed coated substrate from step (c) in a single step with an aqueous alkali developing solution to form an image;

wherein both the photoresist composition and the antireflective composition are exposed in step (c); both are developed in step (d) using a single developer; wherein the antireflective composition of step (a) is a first minimum bottom antireflective coating (B.A.R.C.) composition, having a solids content of up to about 8 weight % solids, and a maximum coating thickness of the coated substrate of $\frac{\lambda}{2n}$ wherein λ is the wavelength of the actinic radiation of step (c) and n is the refractive index of the B.A.R.C. composition and a minimum coating thickness greater than zero.

2. (original) The process of claim 1, wherein the radiation sensitive antireflective composition and the photoresist composition comprise a positive-working composition wherein the antireflective and the photoresist compositions are initially insoluble in the developer but are rendered developer-soluble upon exposure to actinic radiation.

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3.(original) The process of claim 1, wherein the radiation sensitive antireflective composition and the photoresist composition comprise a negative-working composition wherein the antireflective and the photoresist compositions are initially soluble in the developer but are rendered developer-insoluble upon exposure to actinic radiation.

4. (previously amended) The process of claim 1, wherein the B.A.R.C. composition is free of cross-linking and insoluble in the photoresist solvent.

5. (original) The process of claim 1, further comprising baking the coated substrate of step (a) at a temperature of 40°C to 240°C for a period of time less than 3 minutes prior to step (b).

6. (previously amended) The process of claim 5, wherein the baking process is free of cross-linking steps.

7. (original) The process of claim 1, wherein the first minimum B.A.R.C. composition has a maximum coating thickness of about 50 nm for 157 nm and 193 nm exposures, 70 nm for 248 nm exposure and 120 nm for 365 nm exposure.

8. (previously amended) The process of claim 1, wherein the image is free of undercutting and footing.

9. (original) The process of claim 1, wherein the first minimum B.A.R.C. composition comprises a dye.

10.(original) The process of claim 9, wherein the dye is polymer-bound.

11.(original) The process of claim 9, wherein the dye is non polymer-bound.

12.(original) The process of claim 1, wherein the first minimum B.A.R.C. composition comprises a polymer derived from at least one monomer selected from the group consisting of N-methylmaleimide, mevaloniclactone methacrylate (MLMA), 2-methyladamantyl methacrylate (MAdMA), benzyl methacrylate, 9-anthrylmethyl methacrylate (AMMA), styrene, hydroxystyrene, acetoxystyrene, vinyl benzoate, vinyl 4-tert-butylbenzoate, ethylene glycol phenyl ether acrylate, phenoxypropyl acrylate, 2-(4-benzoyl-3-hydroxyphenoxy)ethyl acrylate, 2-hydroxy-3-phenoxypropyl acrylate, phenyl methacrylate, 9-vinylanthracene, 2-vinylnaphthalene, N-vinylphthalimide, N-(3-hydroxy)phenyl methacrylamide, N-(3-hydroxy-4-hydroxycarbonylphenylazo)phenyl methacrylamide, N-(3-hydroxyl-4-ethoxycarbonylphenylazo)phenyl methacrylamide, N-(2,4-dinitrophenylaminophenyl) maleimide, 3-(4-acetoaminophenyl)azo-4-hydroxystyrene, 3-(4-ethoxycarbonylphenyl)azo-acetoacetoxy ethyl methacrylate, 3-(4-hydroxyphenyl)azo-acetoacetoxy ethyl methacrylate, and tetrahydroammonium sulfate salt of 3-(4-sulfophenyl)azoacetoacetoxy ethyl methacrylate.

13. (original) The process of claim 1, wherein the first minimum B.A.R.C. composition comprises a terpolymer of N-methylmaleimide, MLMA, and MAdMA.

14. (original) The process of claim 1, further comprising baking the coated substrate of step (c) prior to step (d).

15. (delete) The process of claim 1, wherein the developing in step (c) is conducted using an aqueous basic developer.

16. (original) The process of claim 1, wherein the developer is an aqueous metal ion free hydroxide.

17.(original) The process of claim 16, wherein the aqueous metal ion free hydroxide is a tetraalkylammonium hydroxide.

18.(original) The process of claim 17, wherein the tetraalkylammonium hydroxide is tetramethylammonium hydroxide.

19. (original) The process of claim 1, wherein the substrate is a semiconductor substrate.

20.(original) The process of claim 1, wherein the wavelength of actinic radiation in step (c) ranges from about 145 nm to 450 nm.

21.(original) The process of claim 20, wherein the wavelength is 193 nm.

22.(original) The process of claim 20, wherein the wavelength is 248 nm.

23.(original) The process of claim 20, wherein the wavelength is 157 nm.

24.(original) The process of claim 1, wherein the photoresist composition comprises an acrylate or methacrylate polymer.

25. (original) The process of claim 1, wherein the photoresist composition comprises a cycloolefin/maleic anhydride copolymer.

26.(original) The process of claim 1, wherein the photoresist comprises a polyhydroxystyrene or a protected polyhydroxystyrene polymer.